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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/021,982 | 11/28/2001 | Gyanesh P. Khare | | 7640 |

7590 03/24/2005

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| EXAMINER |
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GRIFFIN, WALTER DEAN

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| ART UNIT | PAPER NUMBER |
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1764

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,982

Applicant(s)

KHARE, GYANESH P.

Examiner

Walter D. Griffin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 7-63 is/are pending in the application.
- 4a) Of the above claim(s) 48-63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 7-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Amendment

The rejections under 35 USC 102(b) as described in the office action mailed on October 18, 2004 have been withdrawn in view of the amendment filed on January 27, 2005. The Khare reference does not disclose a reduced-valence promoter.

Election/Restrictions

Claims 48-63 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on October 15, 2003.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 4, and 7-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khare et al. (US 5,439,867) in view of Bailey et al. (US 4,634,515).

The Khare reference discloses a sorbent composition that is suitable for removing sulfur from a hydrocarbon fluid. The sorbent comprises a support that is a mixture of alumina (0.5 to 30 wt%), silica (5 to 85 wt%), and zinc oxide (10 to 90 wt%). The sorbent may also contain a silicate such as sodium silicate (1 to 20 wt%). A promoter metal such as nickel is also present. The promoter is present in an amount ranging from 0.1 to 15 weight percent. The sorbent has a mean particle size ranging from about 20 to about 500 micrometers. Percent attrition, as shown in Tables I and III, is less than 20%. The sorbent is prepared by mixing the alumina, silica, and zinc oxide and then granulating this mixture. The promoter is then added to the granulate. The silicate is added to the support mixture. See column 2, lines 40-51; column 3, lines 1-24 and 57-64; column 4, lines 57-65; and column 6, lines 27-49.

The Khare reference does not disclose that the promoter is reduced (e.g., reduced valence nickel), does not disclose a process for producing the sorbent in which the promoter is reduced, does not disclose spray drying, and does not disclose all the claimed methods for incorporating the silicate into the sorbent.

The Bailey reference discloses a sorbent that is used for removing sulfur from hydrocarbons. The sorbent comprises nickel that is in the reduced state. See column 3, lines 10-55.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Khare by including a reducing step to produce a sorbent have a reduced promoter as suggested by Bailey because a sorbent having a reduced promoter provides an improved sulfur capacity.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Khare by spray drying because spray drying techniques, as discussed by Khare, will produce the desired fluidizable sorbent.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Khare by adding the silicate to the composition by any of the claimed steps because as long as the silicate is present in the final material, the properties imparted by such silicate component would be expected to be present regardless of the actual method of adding the silicate to the material.

Response to Arguments

The argument that combining the Bailey reference with the Khare reference would change the principle of operation of the Khare invention and, therefore, the combination is not proper is not persuasive. The Bailey reference is relied upon only to show that reduced nickel is an effective sulfur adsorbent. Therefore, the examiner maintains that one of ordinary skill in the art would have been motivated to subject the nickel of the Khare adsorbent to a reducing step to

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obtain an adsorbent comprising nickel with a reduced oxidation state in order to improve the sulfur capacity of the adsorbent. One would expect this advantage to result regardless of the physical form of the adsorbent.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

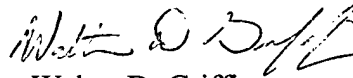
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is (571) 272-1447. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
March 21, 2005